

## Scale-up and other challenges of Bioelectrochemical Systems

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Scientific interest in Bioelectrochemical Systems (BES) is increasing exponentially, as assessed by the number of published papers after 2000. Microbial Fuel Cells and Microbial Electrolysis Cells are interesting research devices but real and full scale applications are still challenging. How far these systems can go beyond the controlled and simulated lab environment?

In my talk, scale-up considerations of BES will be revised and some examples discussed, as for example the pilot scale BES developed in the FP7 Value from Urine project.

Some questions will be addressed such as:

What are the main advantages of these systems as compared with traditional wastewater treatment processes?

How these systems can be used for efficient resource recovery?

How they can be coupled with energy storage devices as for example redox flow batteries?

Finally I will present some fundamental aspects of carbon materials-bacteria/archaea interactions of relevance in BES and beyond.